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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/548,014	04/12/2000	Knut Beekman	WLJ.051	6004
7590 05/28/2004				
Jones Volentine LLP 12200 Sunrise Valley Drive Suite 150 Reston, VA 20191		EXAMINER ESTRADA, MICHELLE		
		ART UNIT 2823		PAPER NUMBER

DATE MAILED: 05/28/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

6K

<b>Office Action Summary</b>	<b>Application No.</b> 09/548,014	<b>Applicant(s)</b> BEEKMAN ET AL.	
	<b>Examiner</b> Michelle Estrada	<b>Art Unit</b> 2823	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 09 March 2004.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 4,6-10 and 13-19 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 4,6-8,13,14 and 16-19 is/are allowed.
- 6) ☒ Claim(s) 9 and 10 is/are rejected.
- 7) ☒ Claim(s) 15 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

### **DETAILED ACTION**

Applicant's arguments have been considered but are moot in view of the new ground(s) of rejection.

### ***Claim Objections***

Claim 15 is objected to because of the following informalities: claim 15 depends on canceled claim 1. Appropriate correction is required.

### **Claim Rejections - 35 USC § 102**

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 9 and 10 are rejected under 35 U.S.C. 102(e) as being anticipated by Kondo et al. (6,001,736).

With respect to claim 9, Kondo et al. disclose treating an exposed surface with hydrogen or a gaseous source of hydrogen in the presence of a plasma; and depositing a metallic layer over the exposed surface (Col. 17, lines 34-52), wherein the hydrogen

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treatment occurs prior to the deposition of the metallic layer (Col. 17, lines 53-65), and wherein the plasma is supplied by a Reactive Ion Etching process (Col. 18, lines 24-26).

With respect to claim 10, Kondo et al. disclose wherein the treatment time is less than 15 minutes (Col. 16, line 24).

***Allowable Subject Matter***

Claims 4, 6-8, 13, 14 and 16-19 are allowed.

The following is an examiner's statement of reasons for allowance: With respect to claims 4-8, 18 and 19, there is no disclosure in the prior art of improving the crystal orientation of the deposited metallic layer such that the x-ray diffraction peak half width on a crystallographic plane of the deposited metallic layer is narrowed relative to the x-ray diffraction peak half width on the crystallographic plane of a metallic layer deposited in the absence of the hydrogen treatment.

With respect to claims 13 and 16, there is no disclosure in the prior art of modifying the crystallographic structure of titanium or titanium alloy and the modification includes the enhancement of the <002> crystallographic orientation of the metallic layer relative to a titanium or titanium alloy layer deposited without the use of atomic hydrogen to modify its crystallographic structure.

With respect to claims 14 and 17, there is no disclosure in the prior art of modifying the crystallographic structure of copper, copper alloy, aluminum, or an aluminum alloy and the modification includes the enhancement of the <111>

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crystallographic orientation of the metallic layer relative to a copper, copper alloy, aluminum, or and aluminum alloy layer deposited without the use of atomic hydrogen to modify its crystallographic structure.

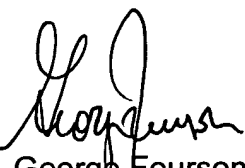
Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michelle Estrada whose telephone number is 571-272-1858. The examiner can normally be reached on Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Olik Chaudhuri can be reached on 571-272-1855. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 571-272-2800.

  
MEstrada  
May 21, 2004

  
George Fourson  
Primary Examiner  
Art Unit 2823